

FIG. 1

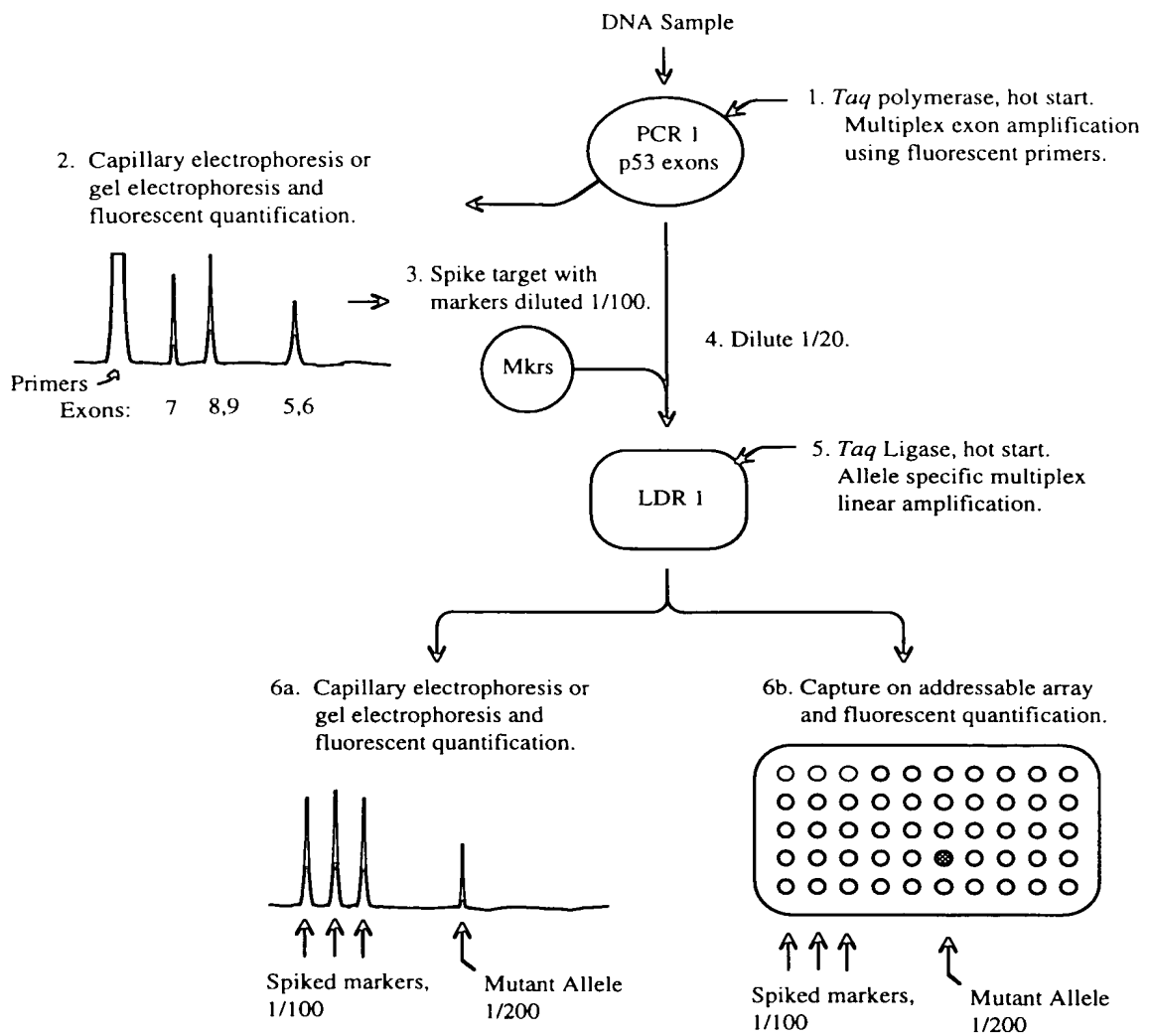
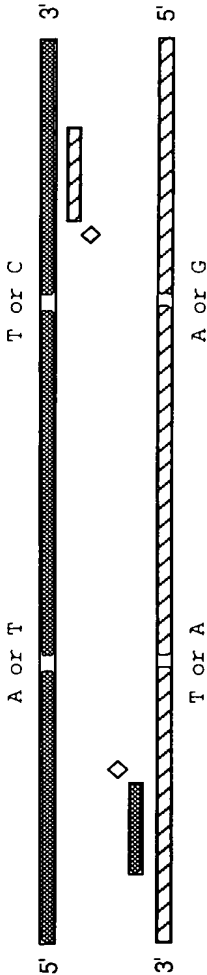


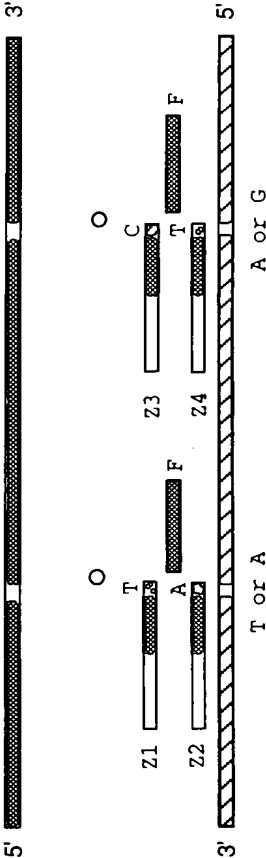
FIG. 2

PCR/ LDR

1. PCR amplify region(s) containing mutations using primers, dNTPs and Taq polymerase. ◇



2. Perform LDR using allele-specific LDR primers and thermostable ligase. ○
Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.



3. Capture fluorescent products on addressable array and quantify each allele.

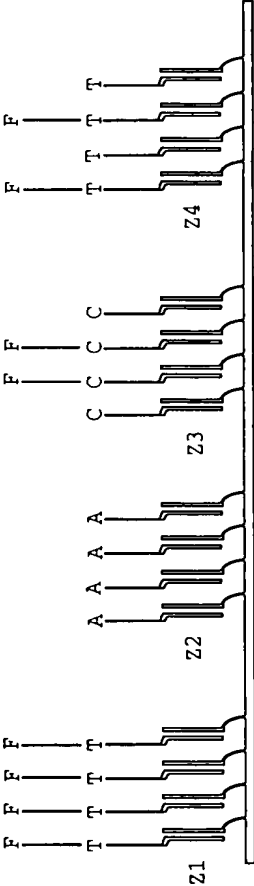
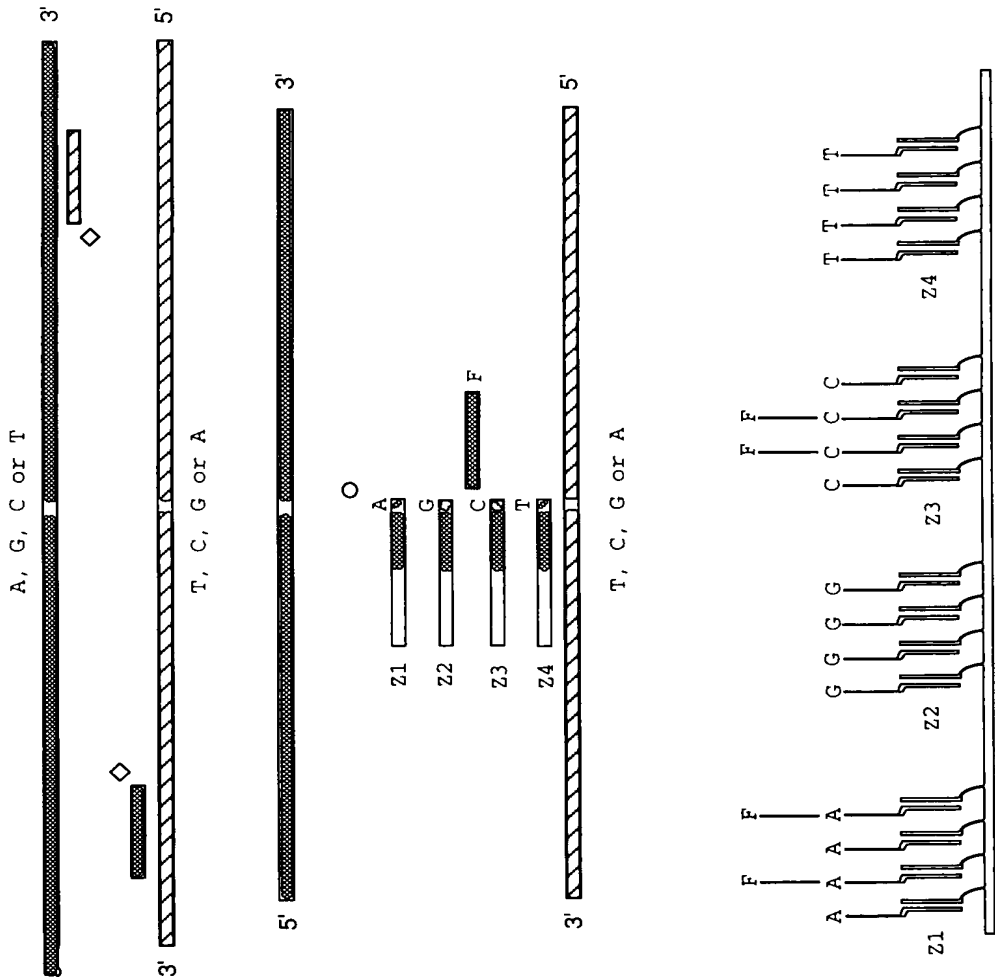


FIG. 3

PCR/LDR

1. PCR amplify region(s) containing mutations using primers, dNTPs and Taq polymerase. ◇
2. Perform LDR using allele-specific LDR primers and thermostable ligase. O
Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.
3. Capture fluorescent products on addressable array and quantify each allele.

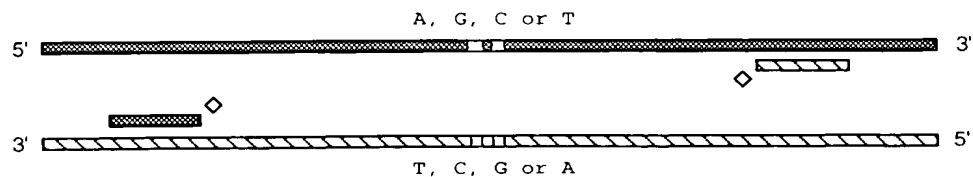


Heterozygous: A and C alleles.

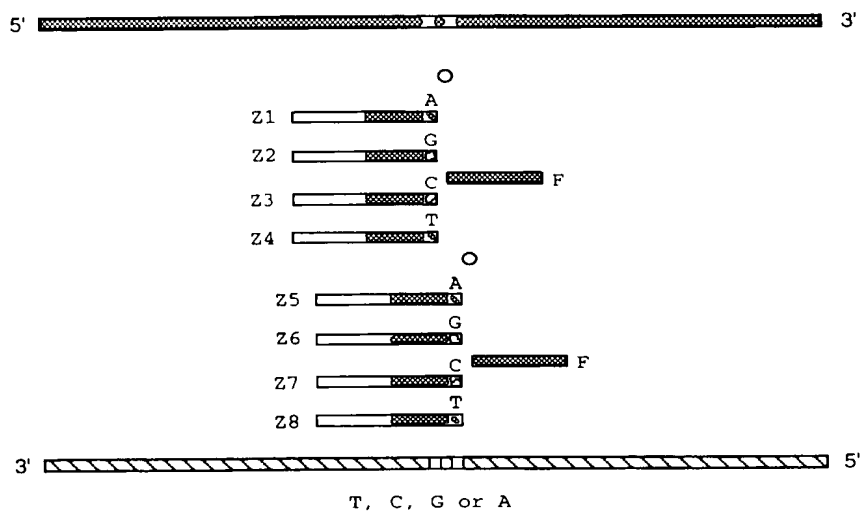
FIG. 4

PCR/ LDR : N arby alleles

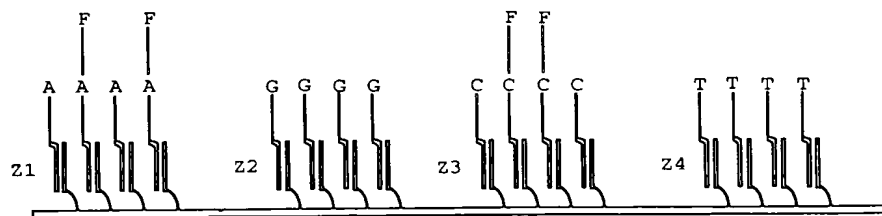
1. PCR amplify region(s) containing mutations using primers, dNTPs and *Taq* polymerase. ◇



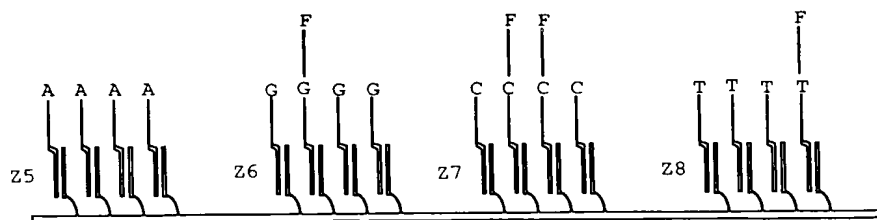
2. Perform LDR using allele-specific LDR primers and thermostable ligase. ○
Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.



3. Capture fluorescent products on addressable array and quantify each allele.



Heterozygous: A and C alleles.

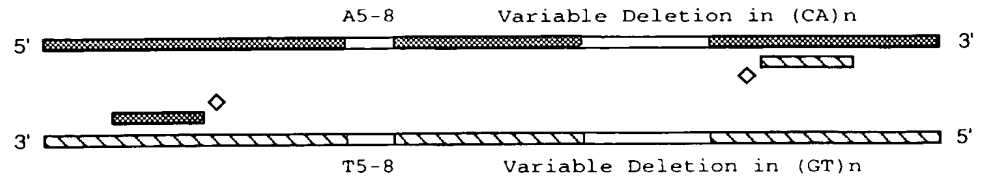


Heterozygous: G,C, and T alleles.

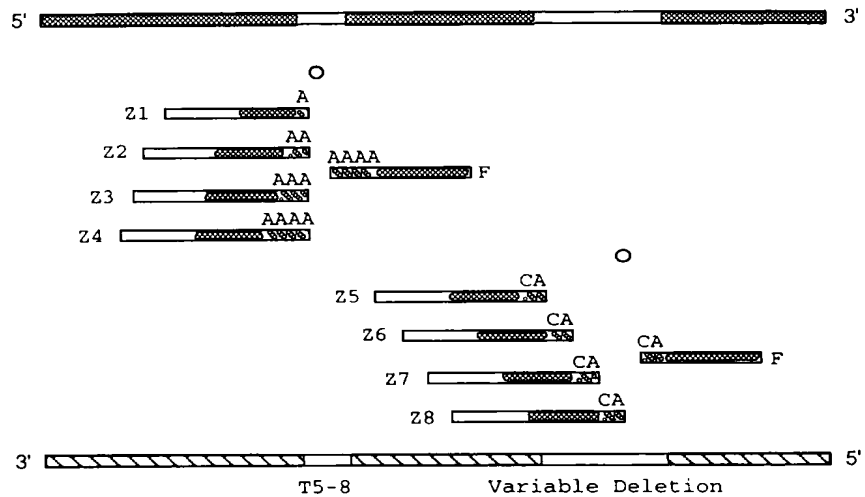
FIG. 5

PCR/ LDR : Insertions and Deletions

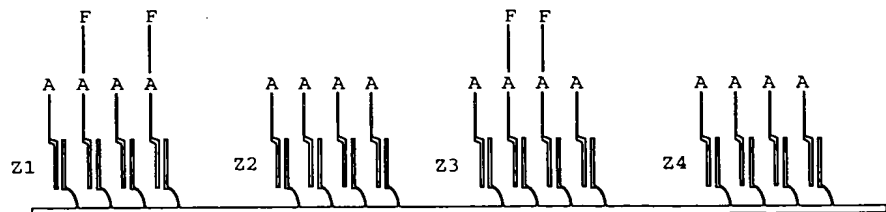
1. PCR amplify region(s) containing mutations using primers, dNTPs and *Taq* polymerase. ◇



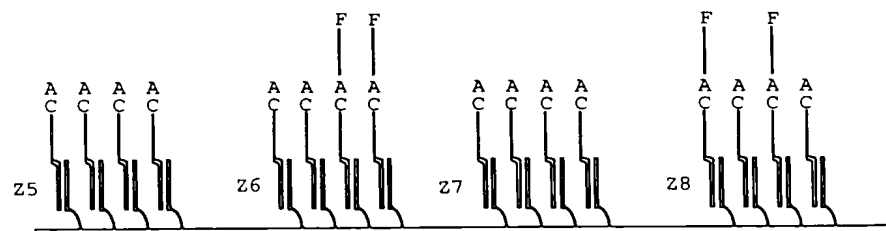
2. Perform LDR using allele-specific LDR primers and thermostable ligase. ○
Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.



3. Capture fluorescent products on addressable array and quantify each allele.



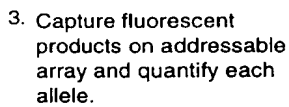
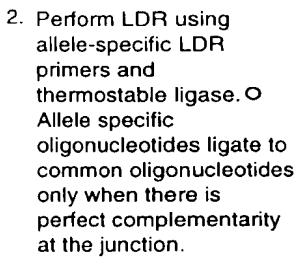
Heterozygous: A5 and A7 alleles.



Heterozygous: (CA)5 and (CA)3 alleles.

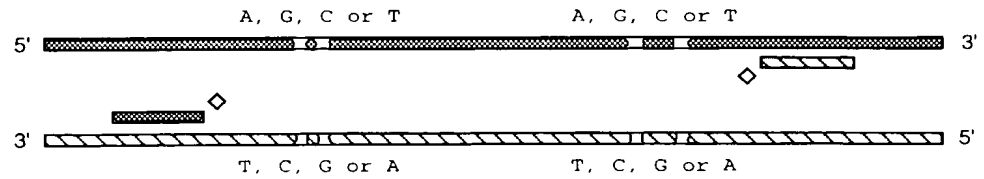
FIG. 6

1. PCR amplify region(s) containing mutations using primers, dNTPs and *Taq* polymerase. ♦

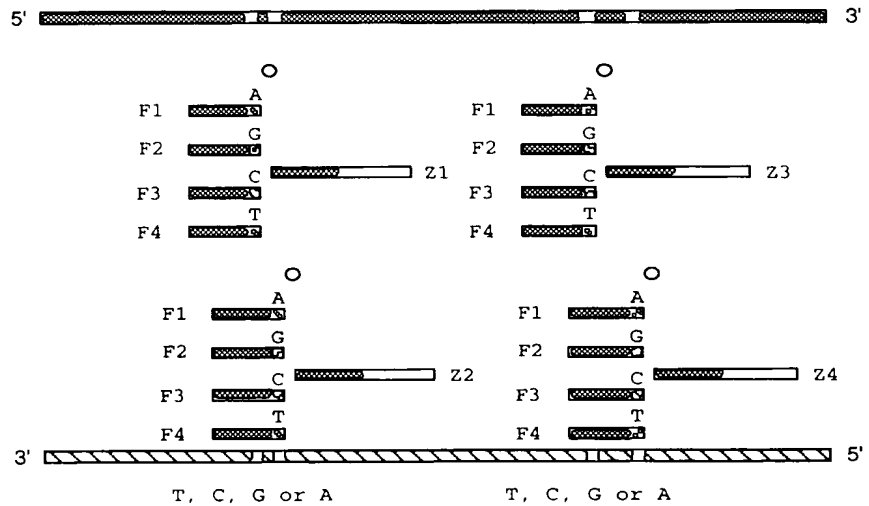


PCR/ LDR : Nearby alleles

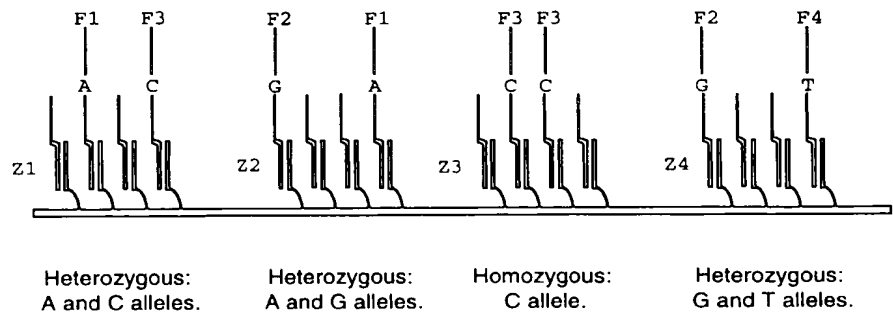
1. PCR amplify region(s) containing mutations using primers, dNTPs and *Taq* polymerase. ◇



2. Perform LDR using allele-specific LDR primers and thermostable ligase. ○
 Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.



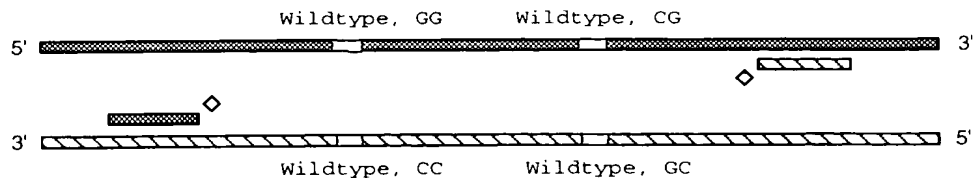
3. Capture fluorescent products on addressable array and quantify each allele.

**FIG. 8**

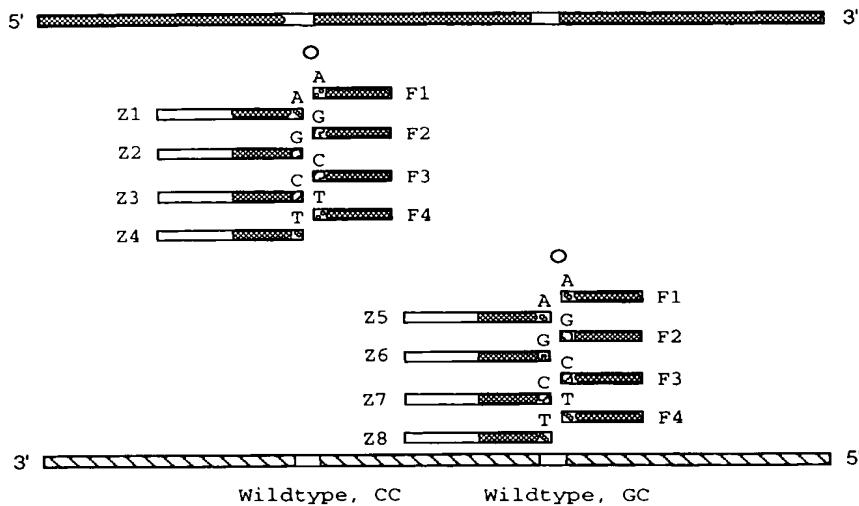
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PCR/ LDR : Adjacent and Nearby alleles

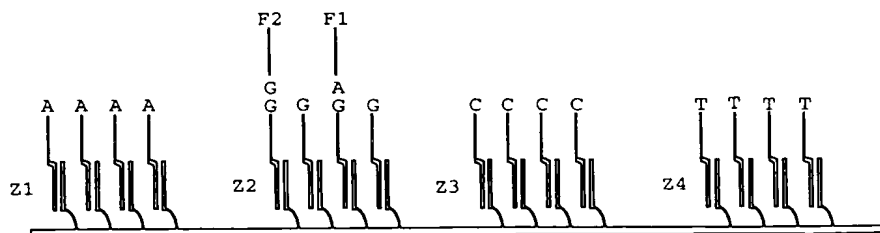
1. PCR amplify region(s) containing mutations using primers, dNTPs and *Taq* polymerase. ◇



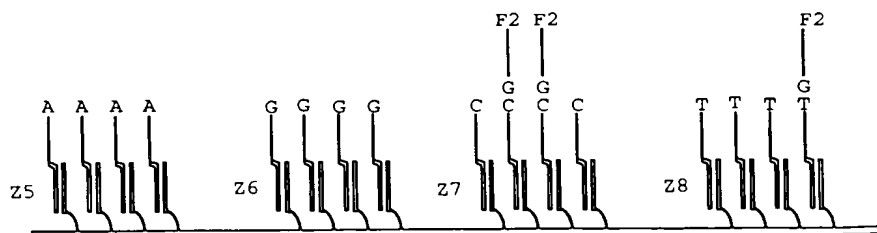
2. Perform LDR using allele-specific LDR primers and thermostable ligase. ○
Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.



3. Capture fluorescent products on addressable array and quantify each allele.



Heterozygous: Gly and Glu alleles.



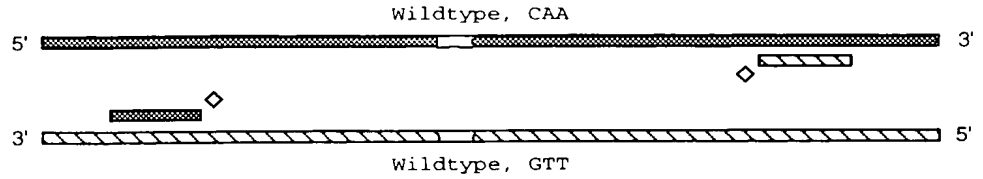
Heterozygous: Arg and Trp alleles.

FIG. 9

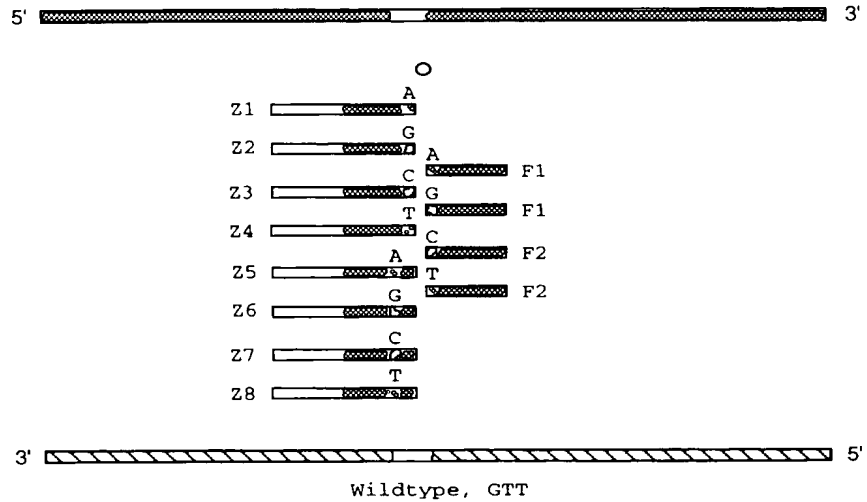
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PCR/ LDR : All alleles of a single codon

1. PCR amplify region(s) containing mutations using primers, dNTPs and Taq polymerase. ◇



2. Perform LDR using allele-specific LDR primers and thermostable ligase. ○
Allele specific oligonucleotides ligate to common oligonucleotides only when there is perfect complementarity at the junction.



3. Capture fluorescent products on addressable array and quantify each allele.

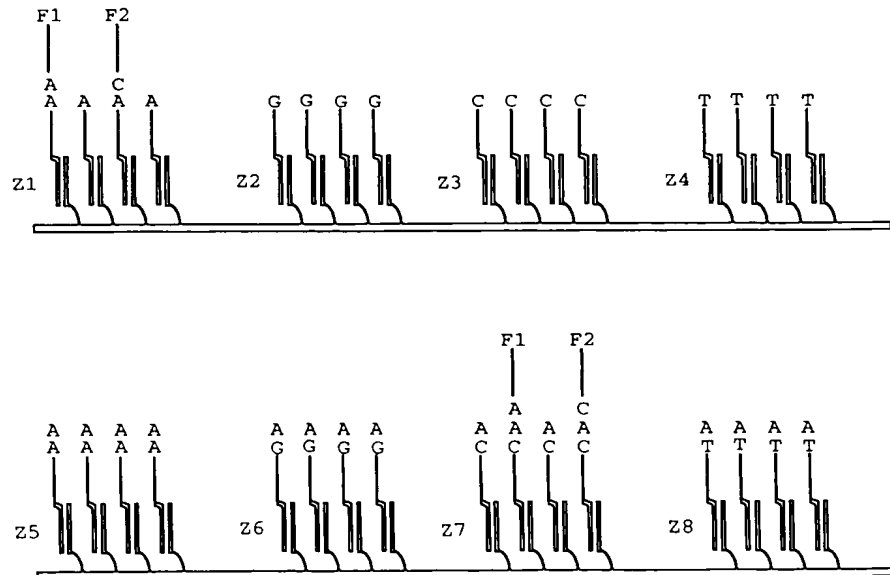
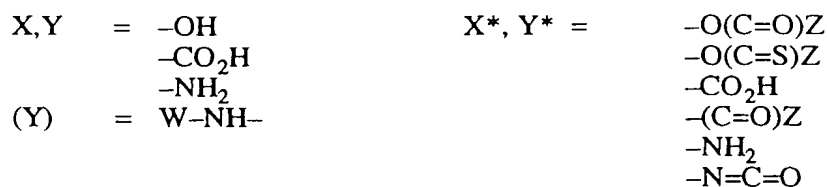
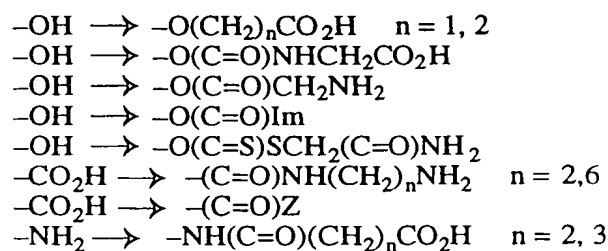


FIG. 10



WSC = water soluble carbodiimide

Functional group transformations/activation (as needed), $X \rightarrow X^*$, $Y \rightarrow Y^*$



Covalent linkage, $X^* + Y^*$

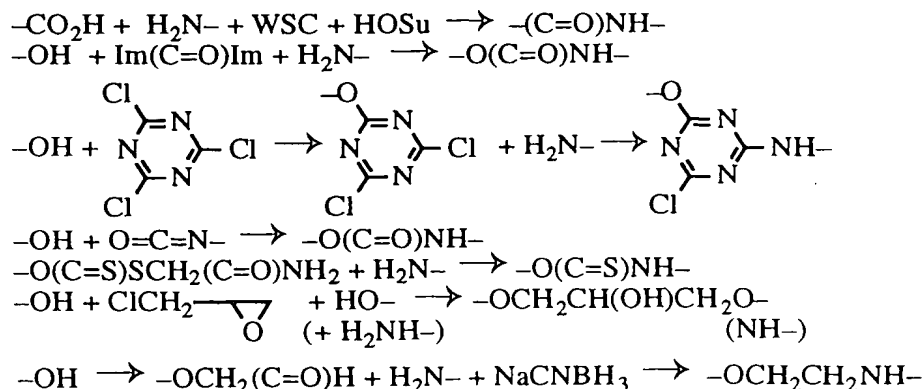
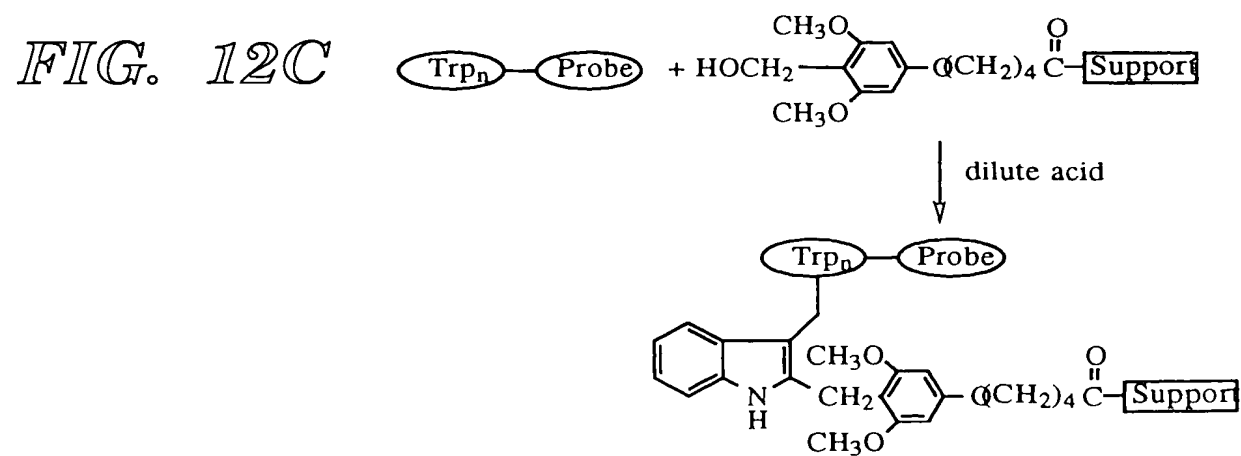
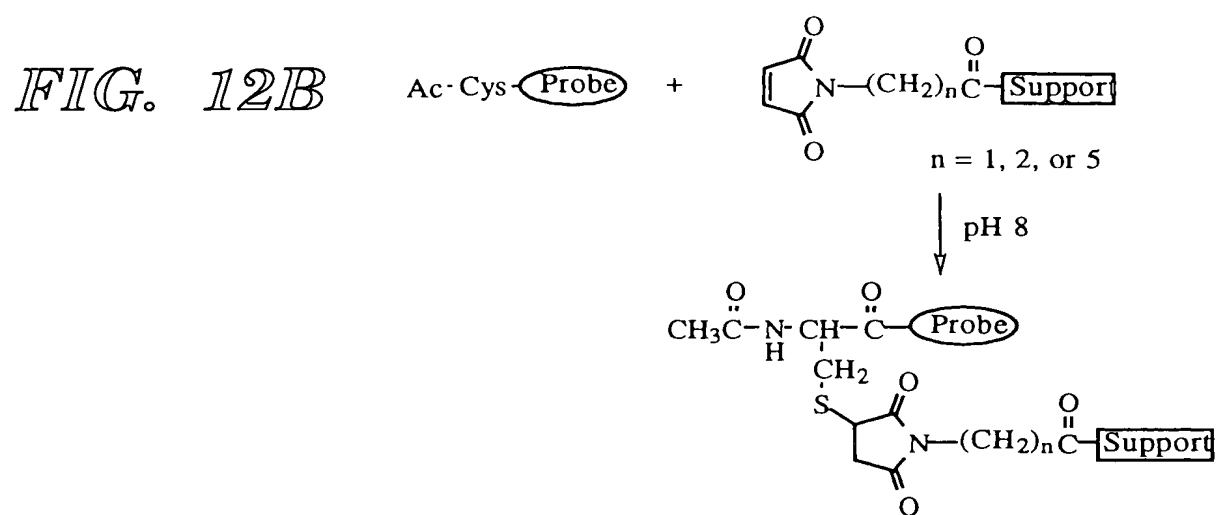
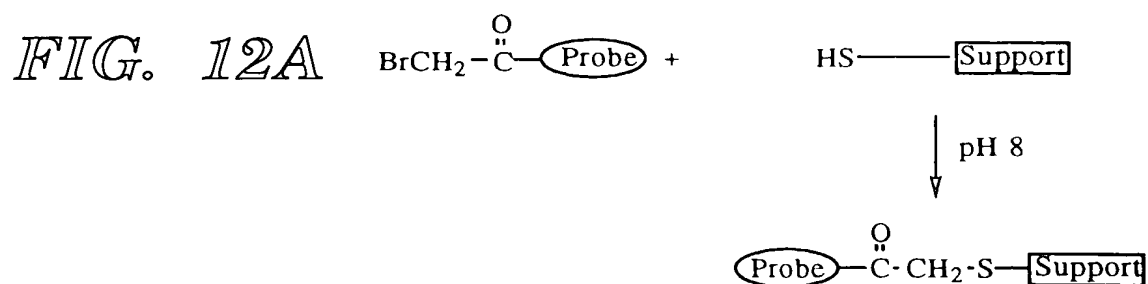
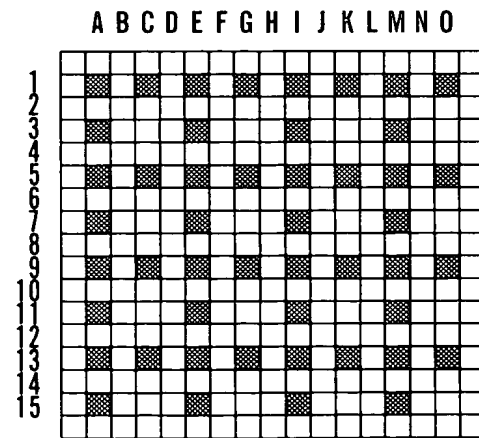
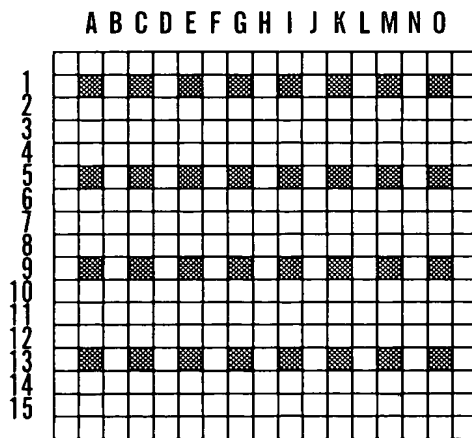
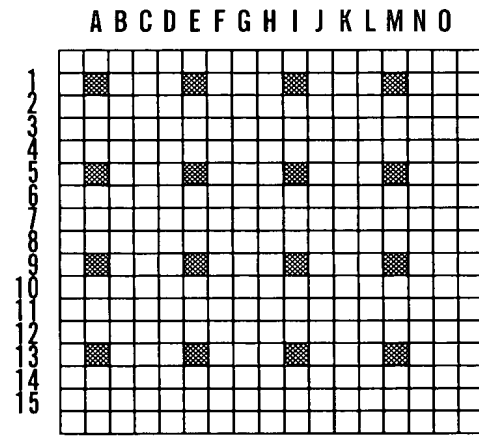
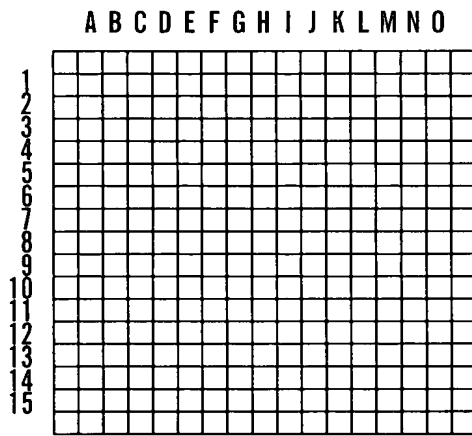
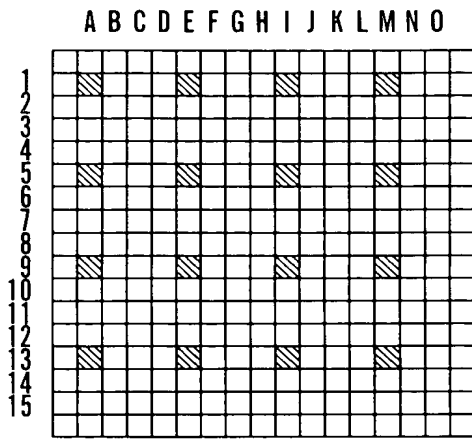


FIG. 11





105260-02529560

FIG. 15A

1st addition of unique 24mers.

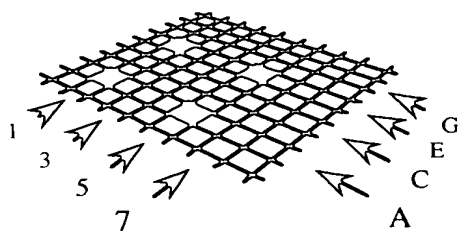


FIG. 15B

2nd addition of unique 24mers.

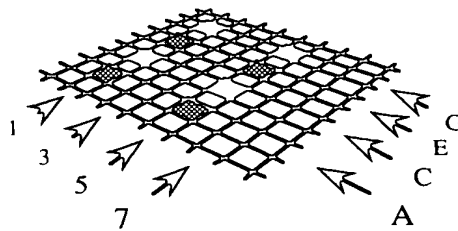


FIG. 15C

3rd addition of unique 24mers.

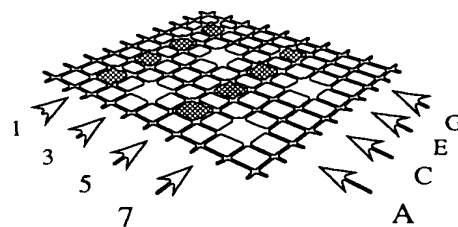


FIG. 15D

4th addition of unique 24mers.

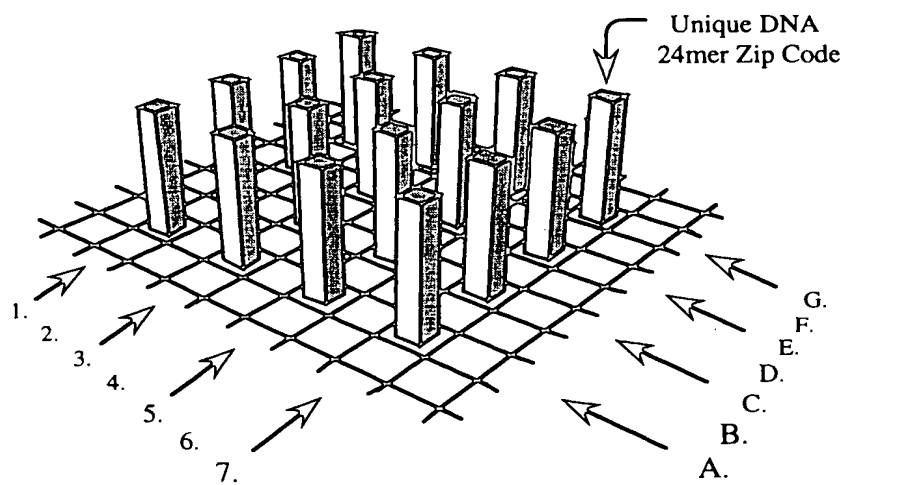
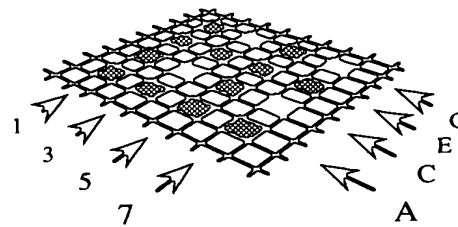


FIG. 15E

FIG. 16A

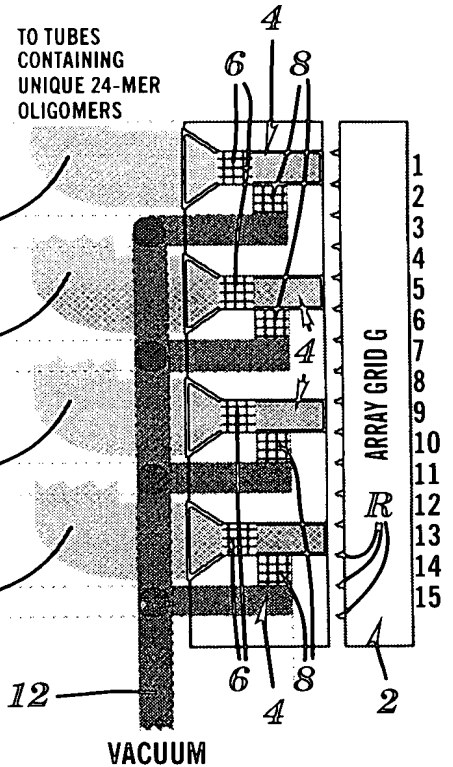
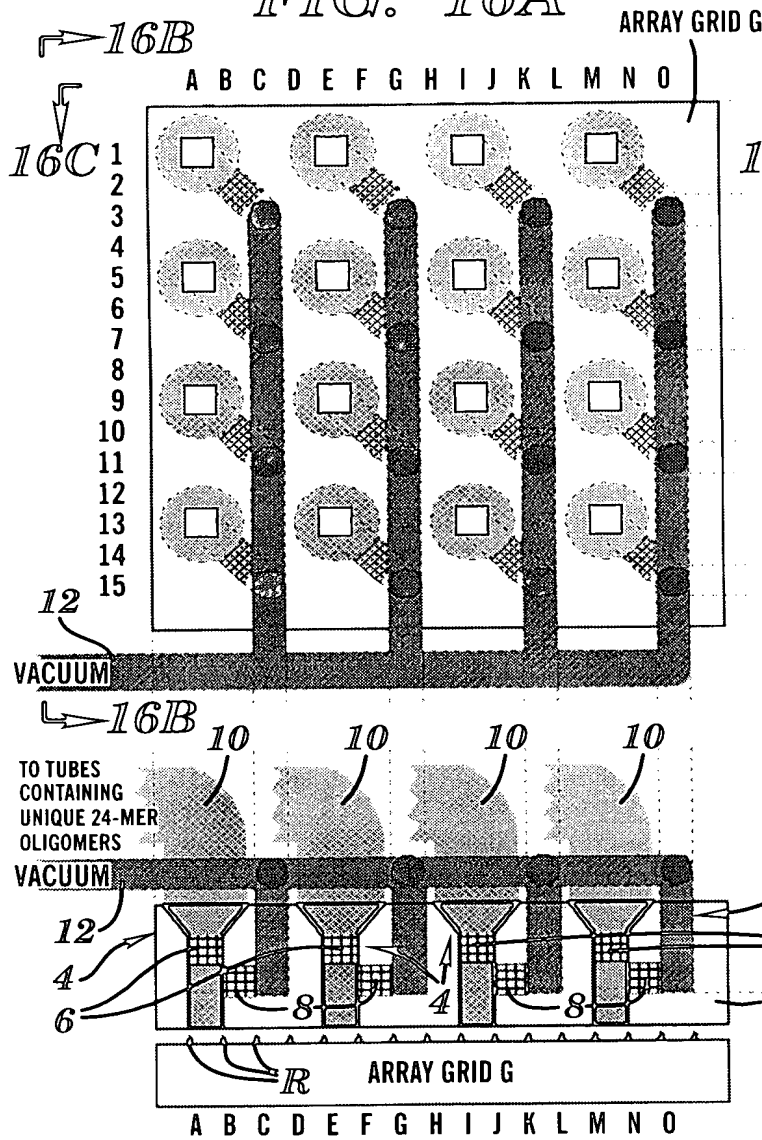
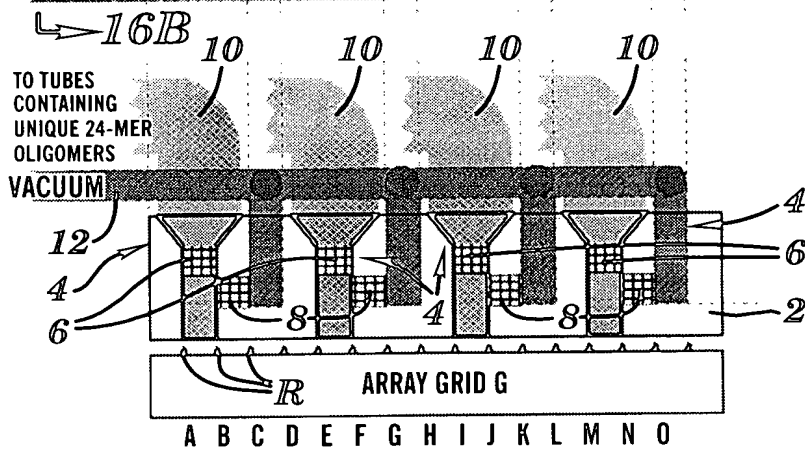


FIG. 16B

FIG. 16C



2ND TWO BASES
1ST TWO BASES

	TT	TC	TG	TA	CT	CC	CG	CA	GT	GC	GG	GA	AT	AC	AG	AA
TT							16'			23'		TTGA 6			TTAG 8	
TC			TCTG 1		30'	TCCC 3			TCGT 5							6'
TG		TGTC 2		36'			TGCG 4						TGAT 7		11'	
TA						18'		TACA 36			33'					
CT	32'		CTTG 9					CTCA 11	CTGT 13							8'
CC				CCTA 33					29'				CCAT 15			
CG	CGTT 10		12'					4'					28'			CGAA 16
CA		34'			25'		CAGC 12		CAGC 14			1'			9'	
GT					GTCT 19	24'				GTGC 22			31'			
GC	CGTT 17		14'											22'		GCAA 23
GG		20'		GGTA 18	35'							3'		GGAC 24		
GA			GATG 34			GACC 20		2'	GAGT 21							
AT						ATCG 28	7'				15'			ATAC 31		
AC		21'			ACCT 27						ACGG 29	5'			13'	
AG			AGTG 25			AGCC 35			27'			AGGA 30		19'		
AA		AATC 26					10'			17'					AAAG 32	

FIG. 17

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1st Tetramer addition
(columns)

1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

FIG. 18A

2nd Tetramer addition
(rows)

6	6	6	6	6
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2

FIG. 18B

3rd Tetramer addition
(columns)

3	4	5	6	1
3	4	5	6	1
3	4	5	6	1
3	4	5	6	1
3	4	5	6	1

FIG. 18C

4th Tetramer addition
(rows)

2	2	2	2	2
1	1	1	1	1
6	6	6	6	6
5	5	5	5	5
4	4	4	4	4

FIG. 18D

5th Tetramer addition
(columns)

6	1	2	3	4
6	1	2	3	4
6	1	2	3	4
6	1	2	3	4
6	1	2	3	4

FIG. 18E

6th Tetramer addition
(rows)

3	3	3	3	3
2	2	2	2	2
1	1	1	1	1
6	6	6	6	6
5	5	5	5	5

FIG. 18F

Addressable array with full length PNA 24mers

1-6-3-2-6-3	2-6-4-2-1-3	3-6-5-2-2-3	4-6-6-2-3-3	5-6-1-2-4-3
1-5-3-1-6-2	2-5-4-1-1-2	3-5-5-1-2-2	4-5-6-1-3-2	5-5-1-1-4-2
1-4-3-6-6-1	2-4-4-6-1-1	3-4-5-6-2-1	4-4-6-6-3-1	5-4-1-6-4-1
1-3-3-5-6-6	2-3-4-5-1-6	3-3-5-5-2-6	4-3-6-5-3-6	5-3-1-5-4-6
1-2-3-4-6-5	2-2-4-4-1-5	3-2-5-4-2-5	4-2-6-4-3-5	5-2-1-4-4-5

FIG. 18G

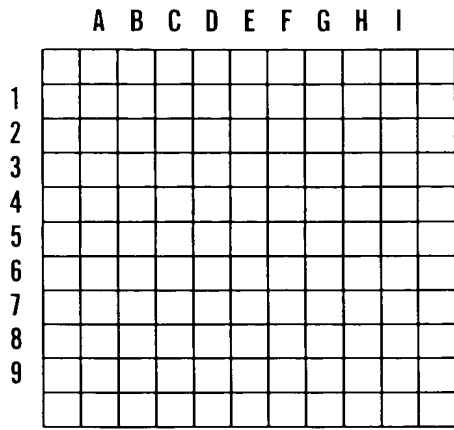


FIG. 19A

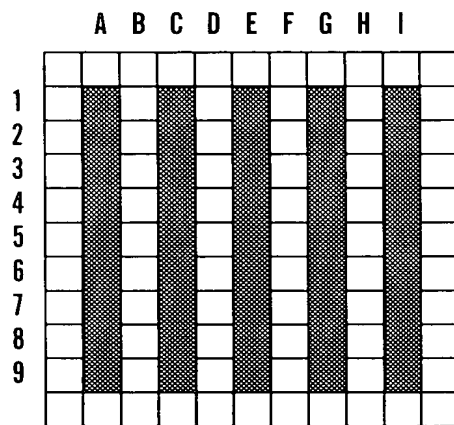


FIG. 19B

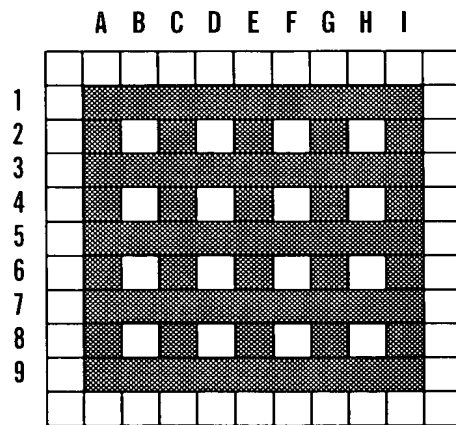


FIG. 19C

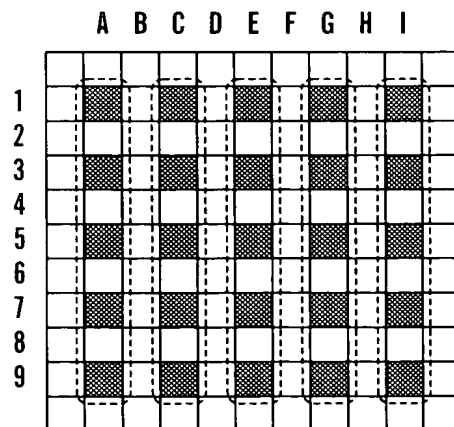


FIG. 19D

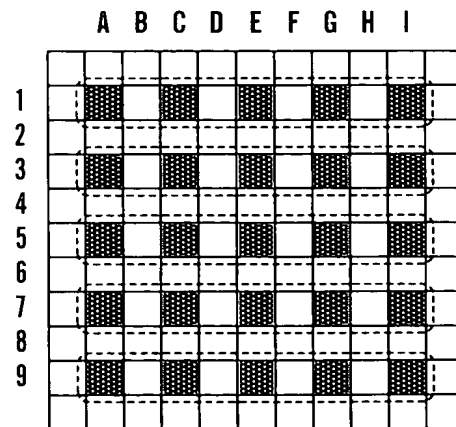


FIG. 19E

FIG. 20A

1st Tetramer additions
(columns)

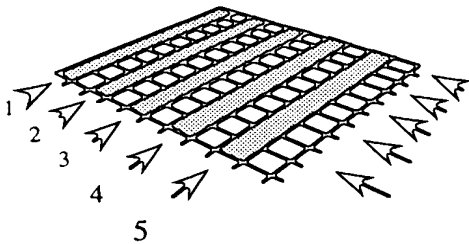


FIG. 20B

2nd Tetramer additions
(rows)

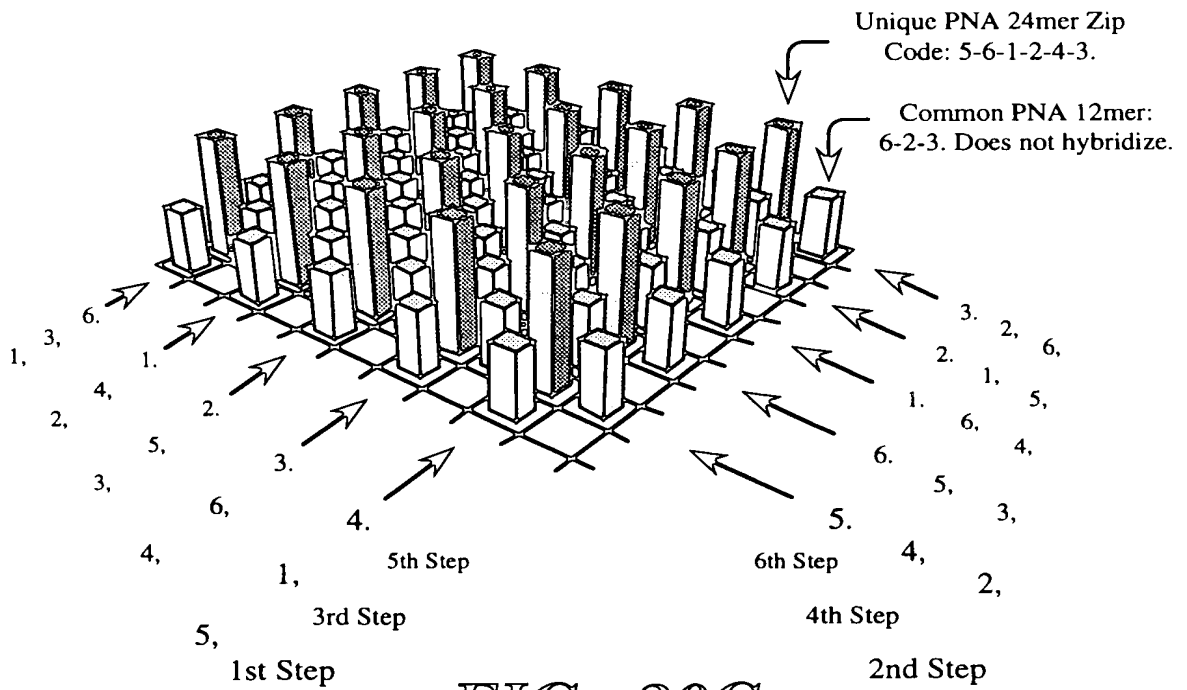
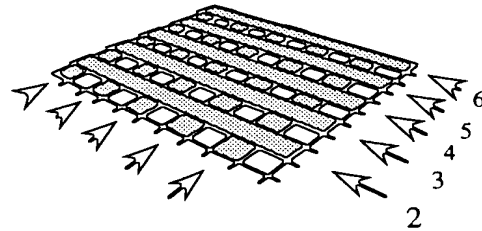


FIG. 20C

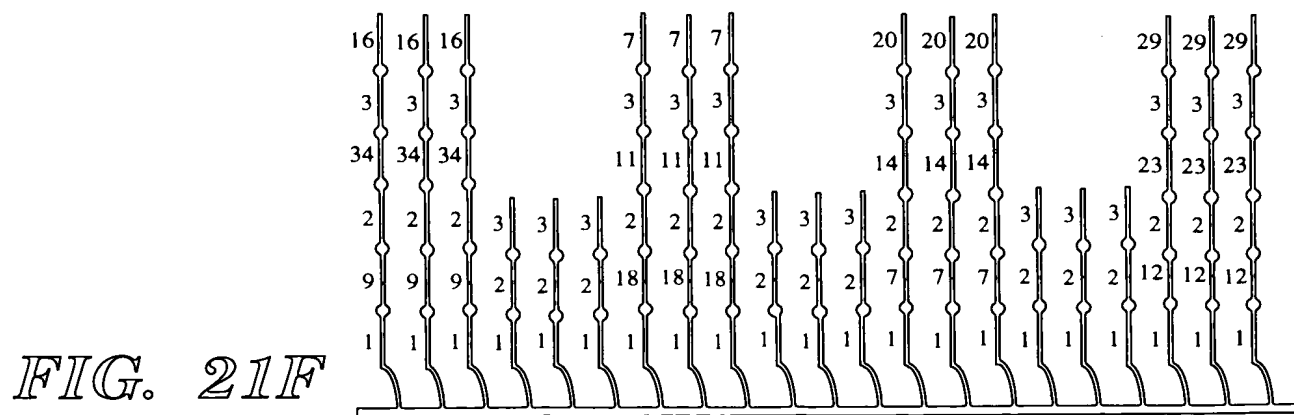
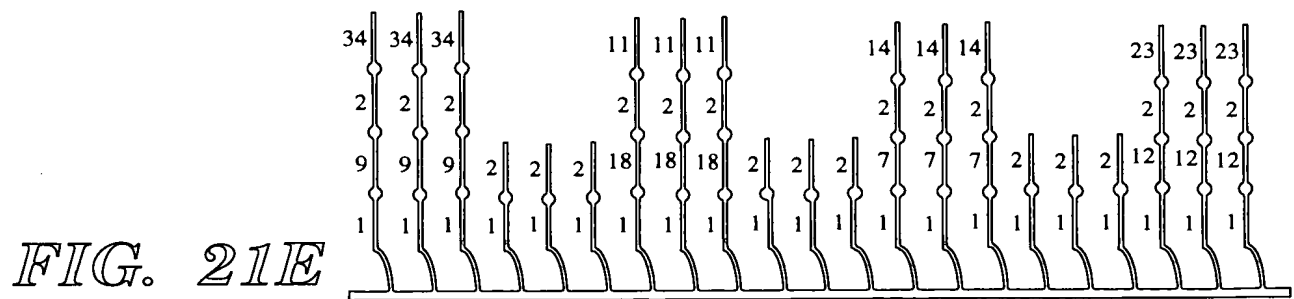
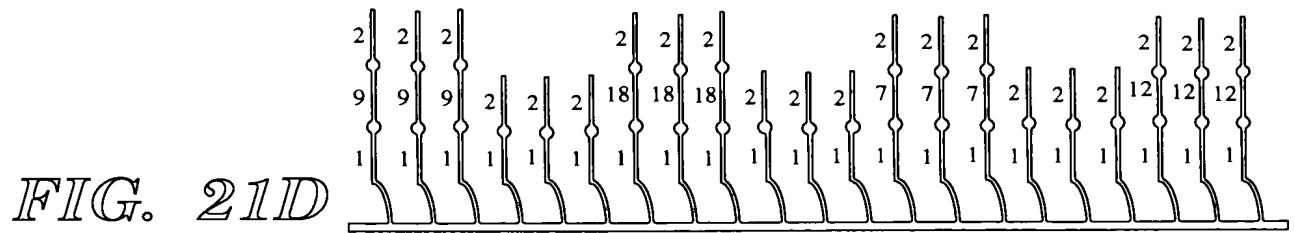
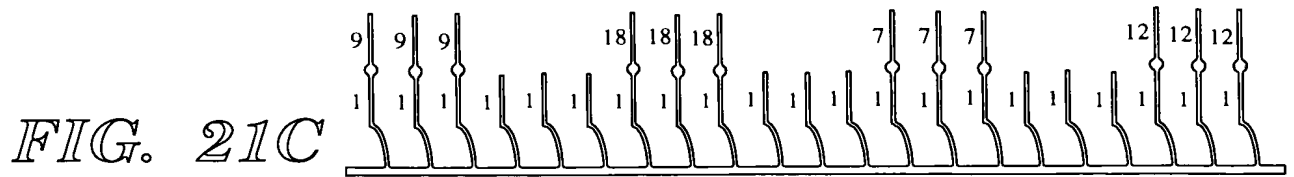
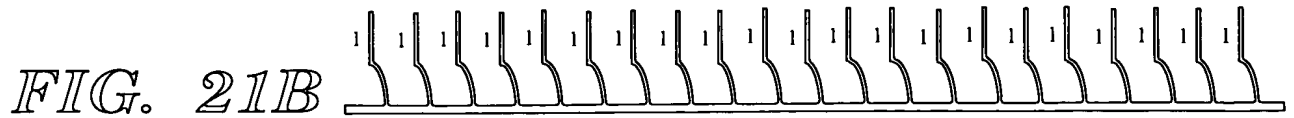




FIG. 22C

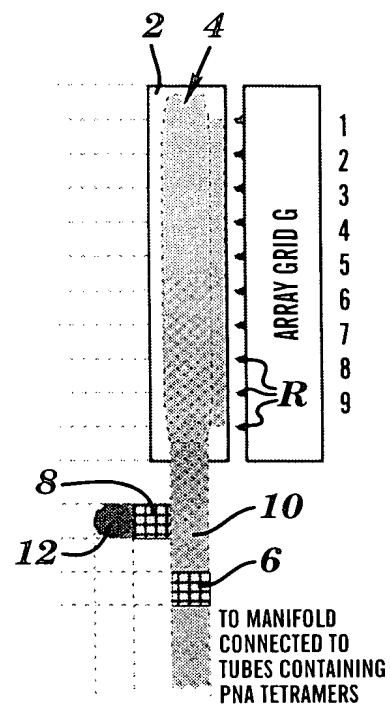


FIG. 22B

FIG. 23A

1st Tetramer additions
(columns)

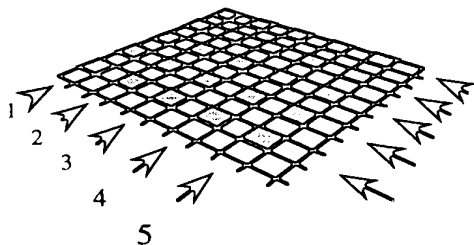
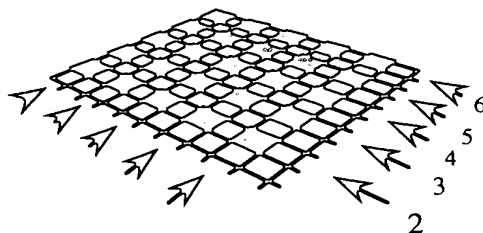


FIG. 23B

2nd Tetramer additions
(rows)



Unique PNA 24mer Zip
Code: 5-6-1-2-4-3.

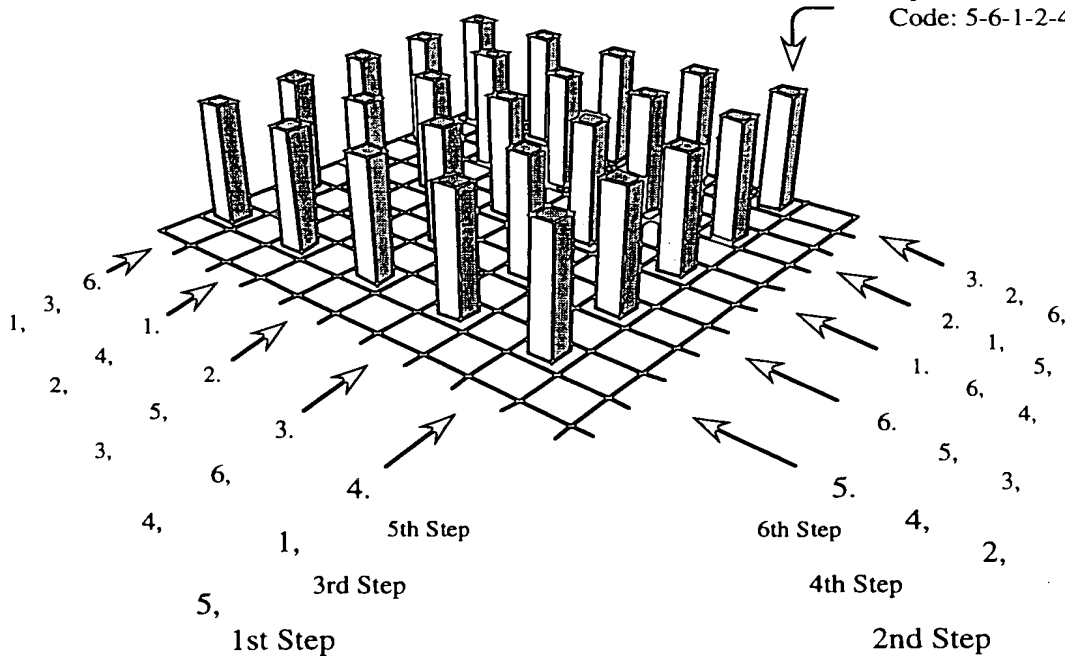


FIG. 23C

09963920 02659660

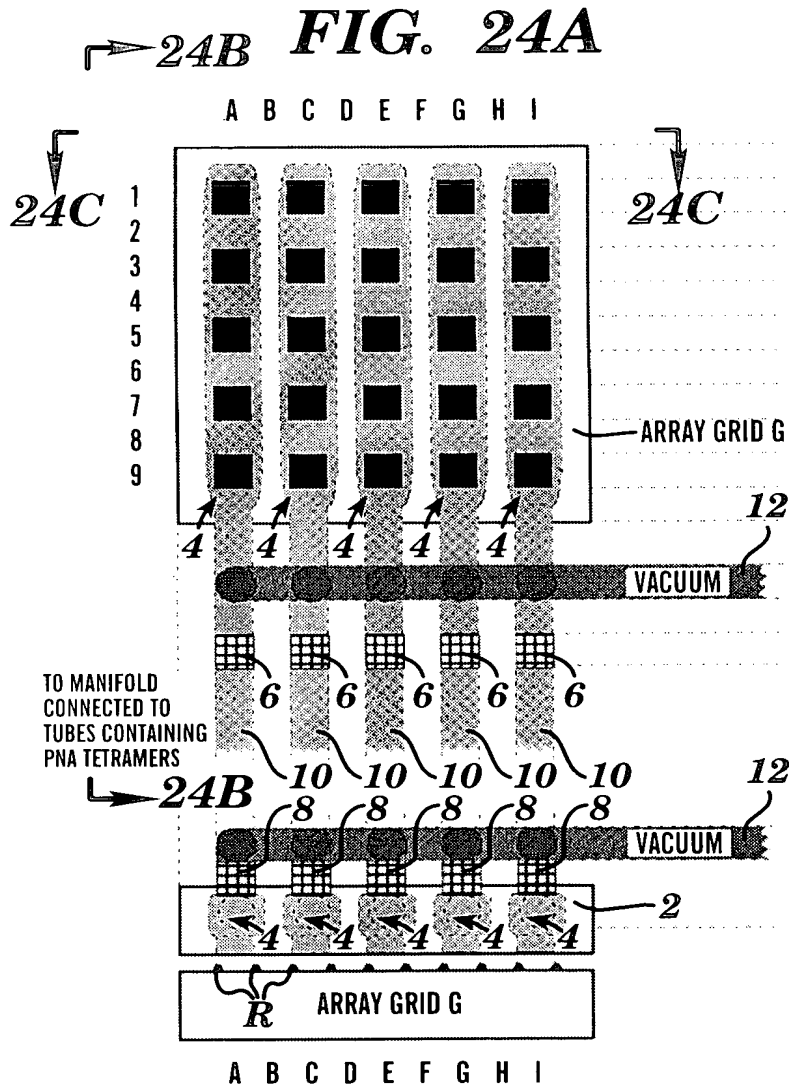


FIG. 24C

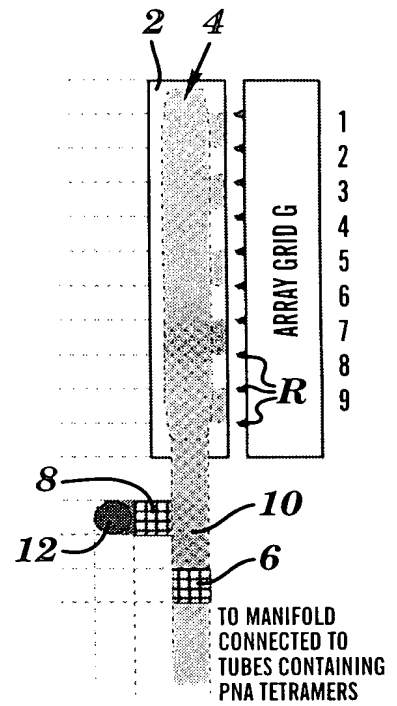


FIG. 24B

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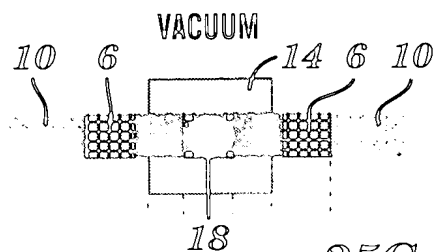


FIG. 25B

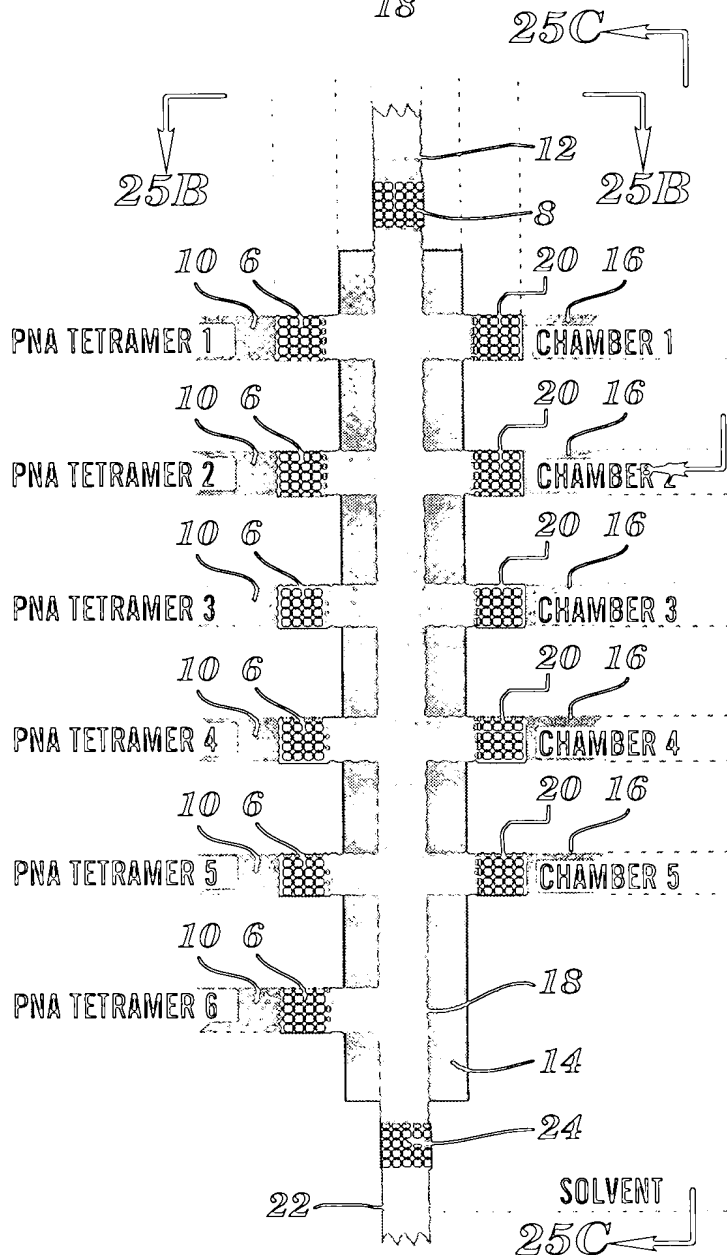


FIG. 25A

VALVE BLOCK
ASSEMBLY

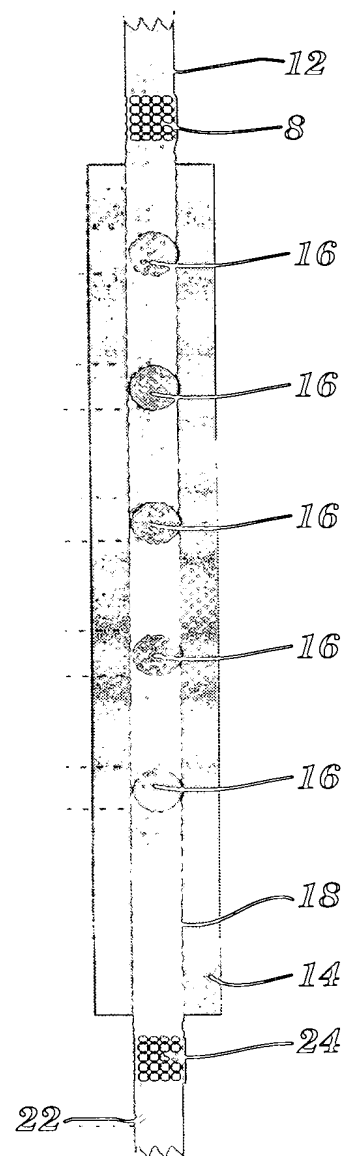


FIG. 25C

6 INPUTS AND 5 OUTPUTS

FIG. 26A 26/34

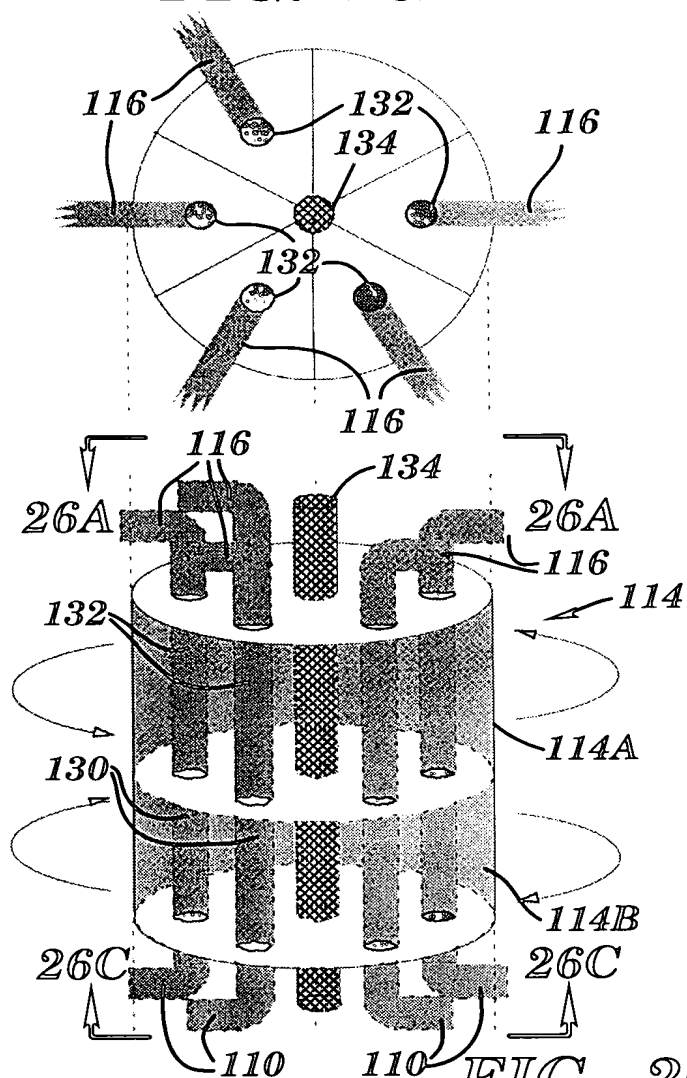


FIG. 26B

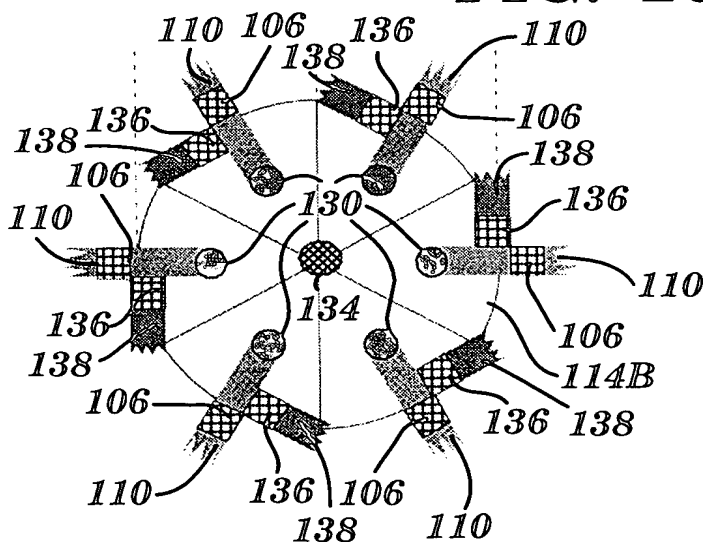


FIG. 26C

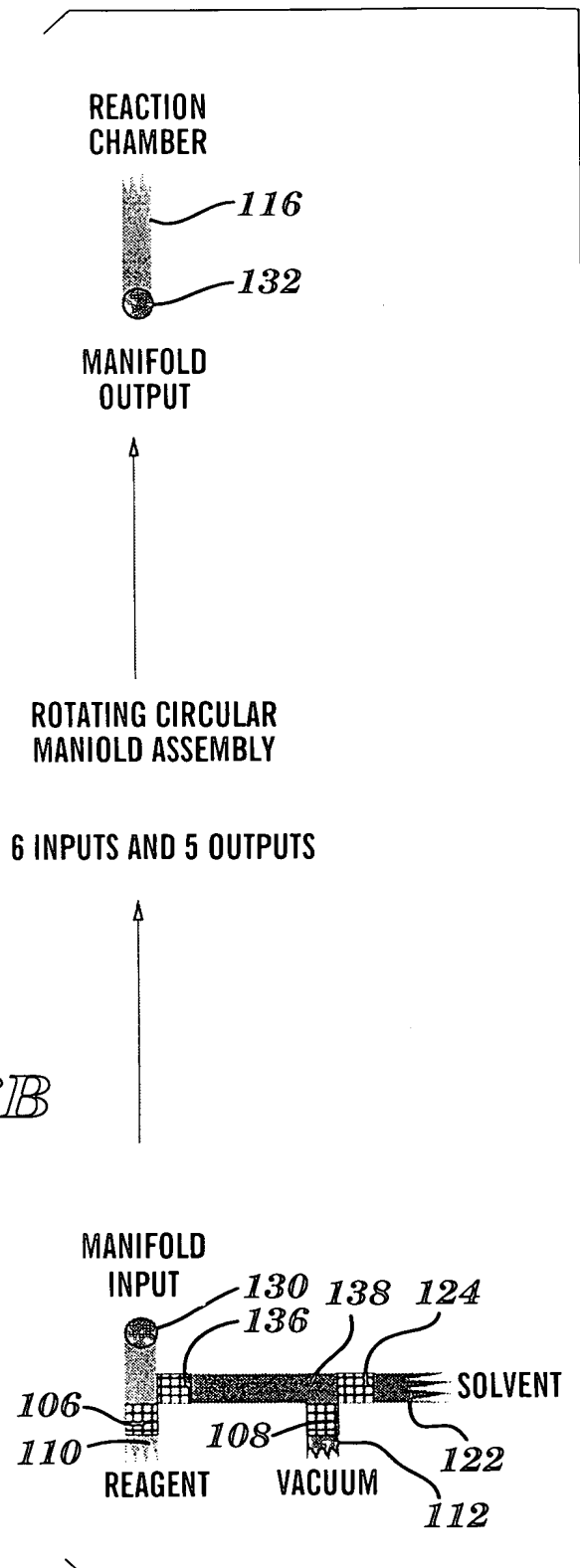


FIG. 26D

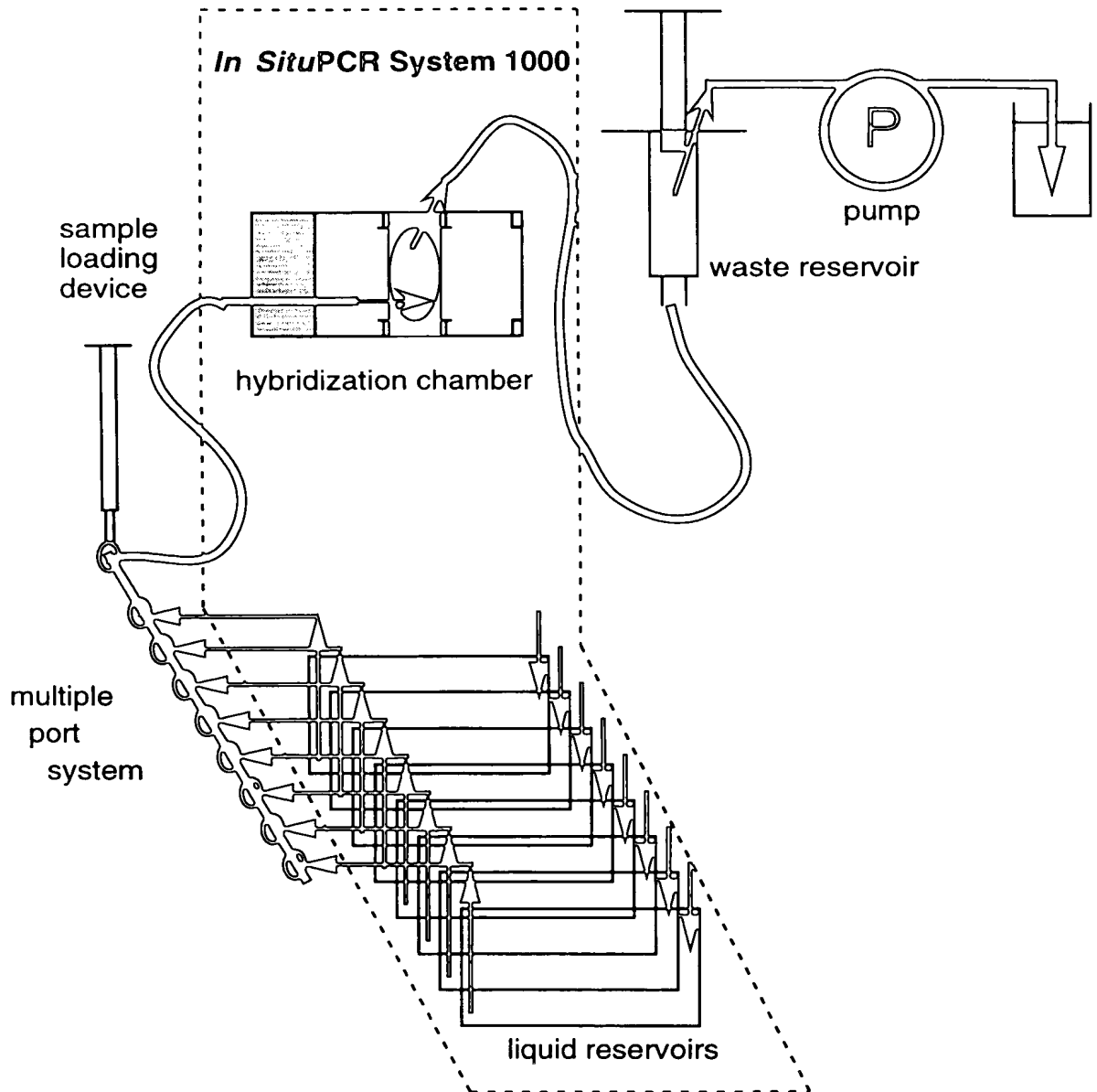


FIG. 27

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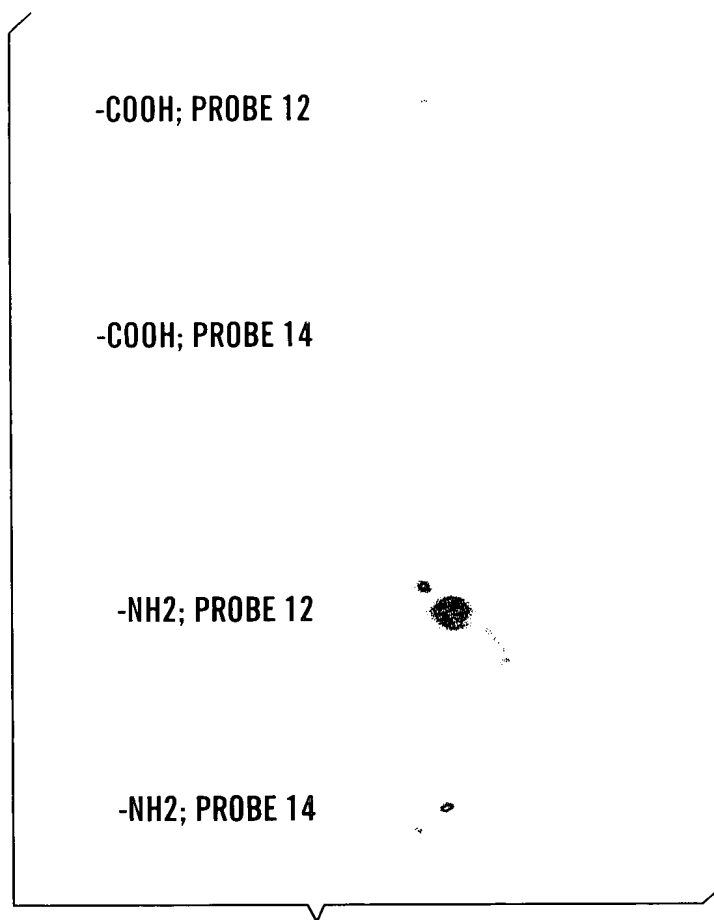


FIG. 28

109260-02619640

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2% EGDMA



2% HDDMA



4% EGDMA



FIG. 29



FIG. 30

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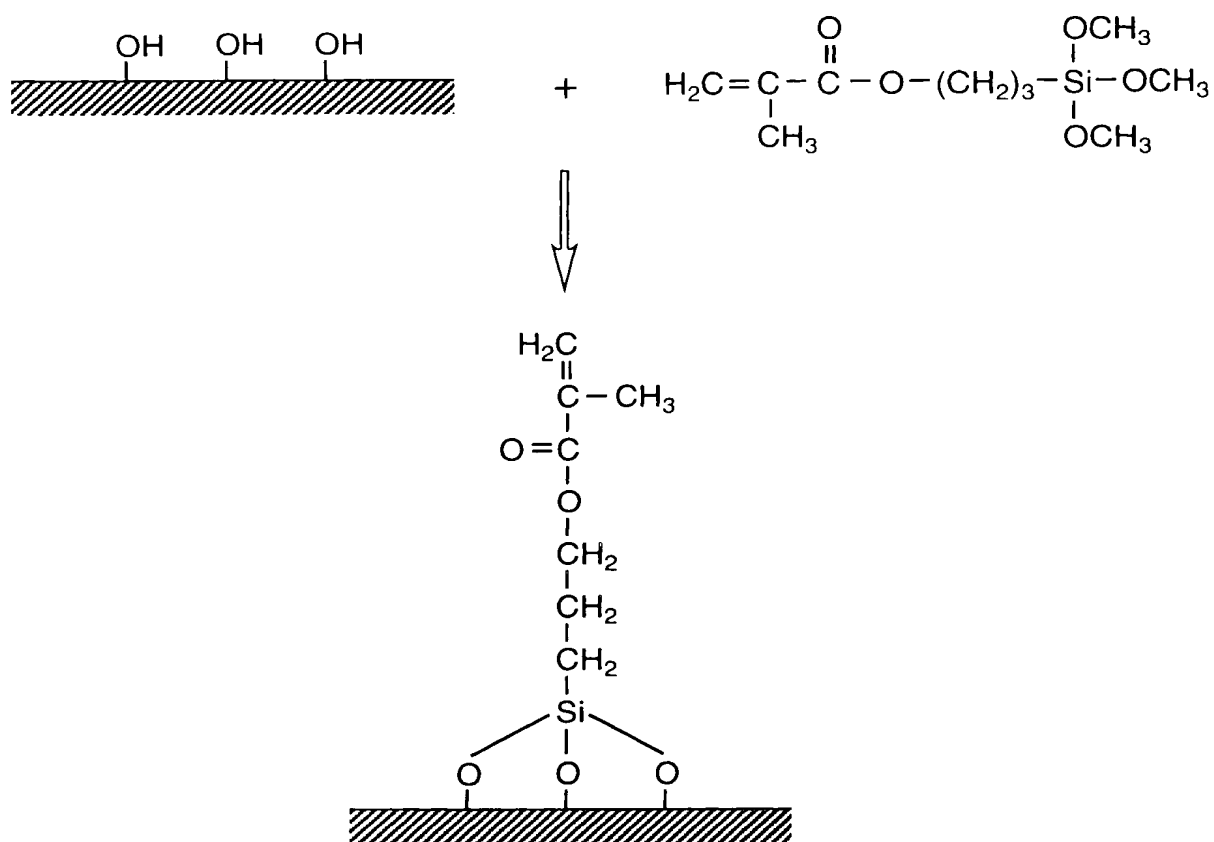


FIG. 31

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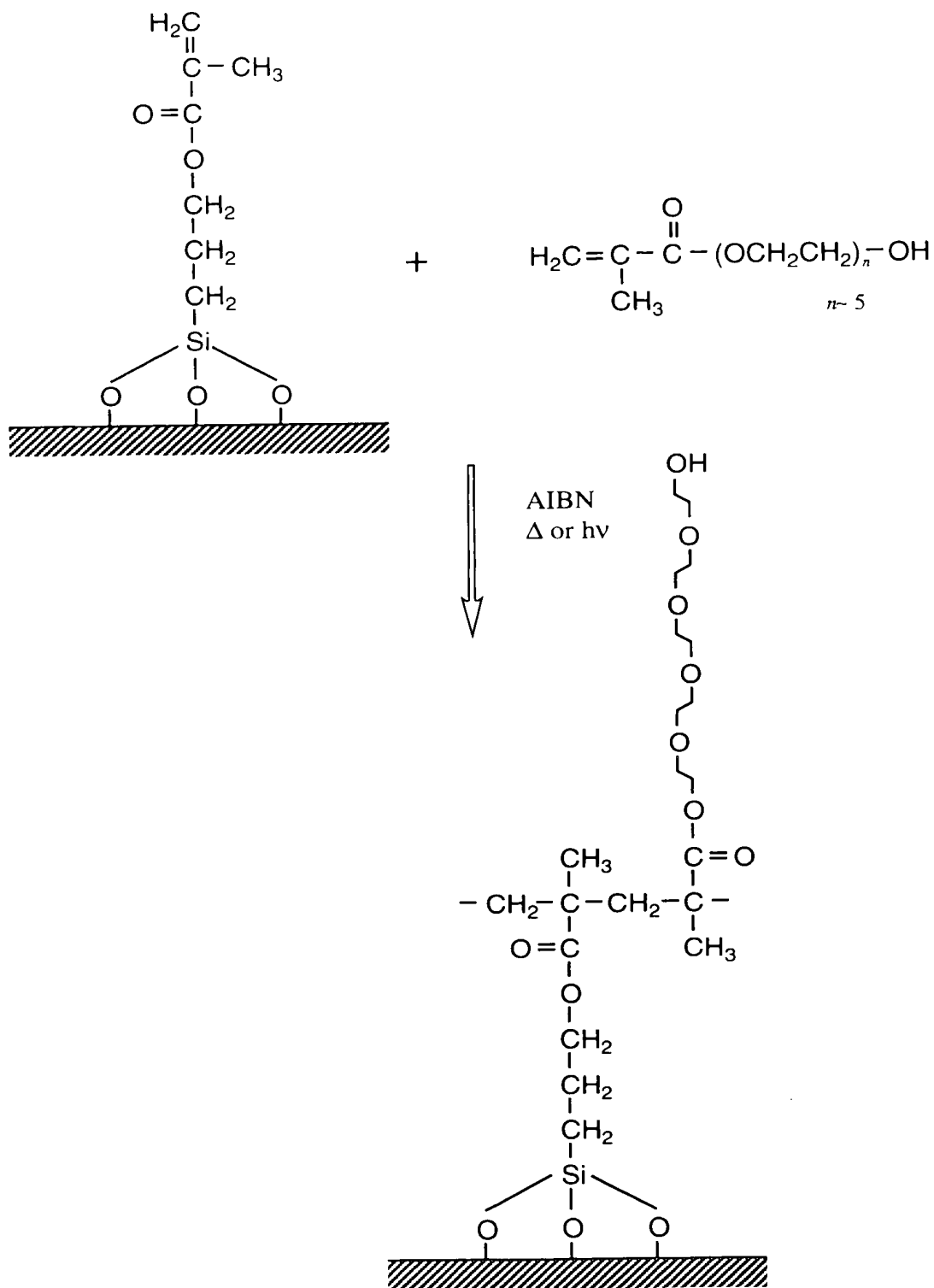


FIG. 32

09963920 09260

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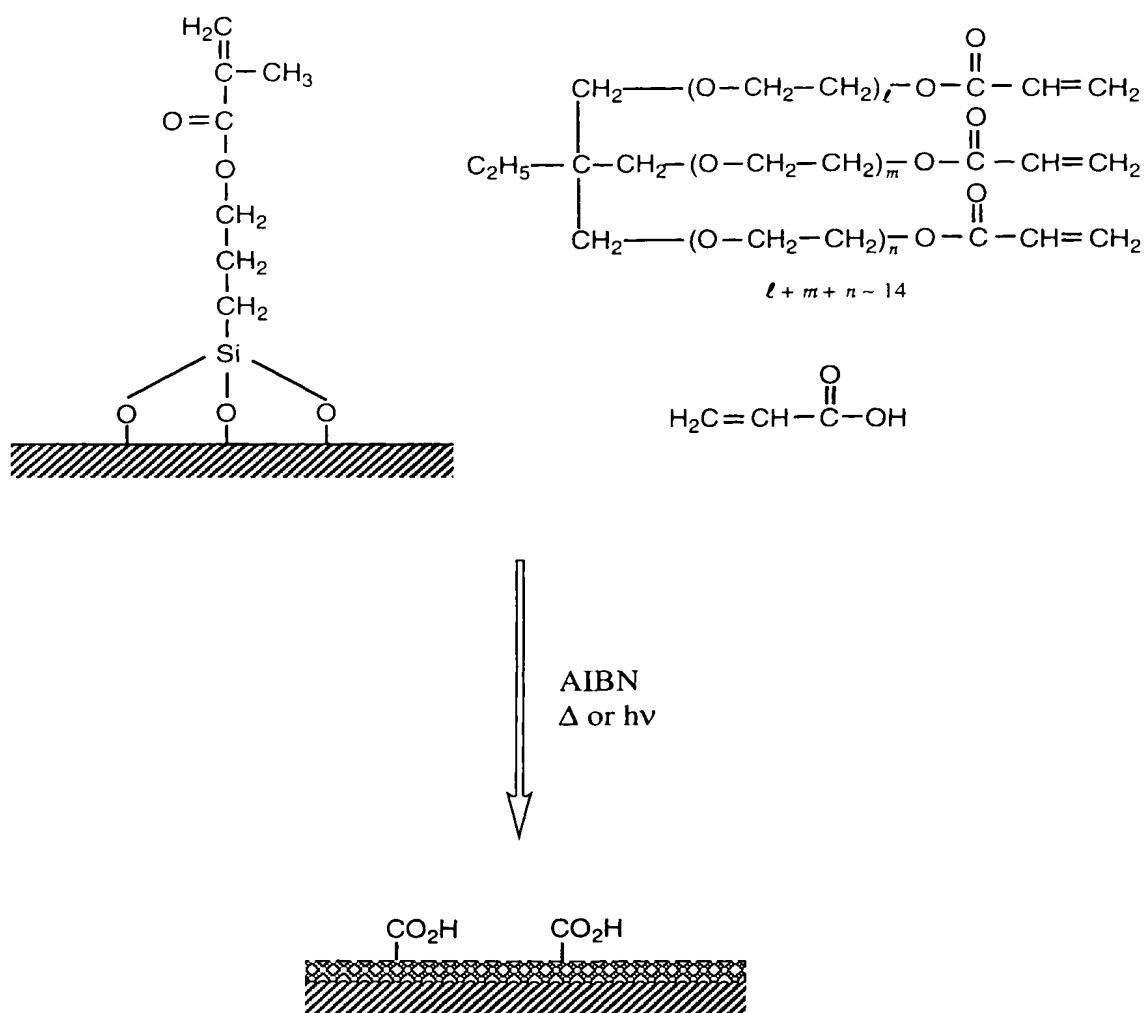


FIG. 33

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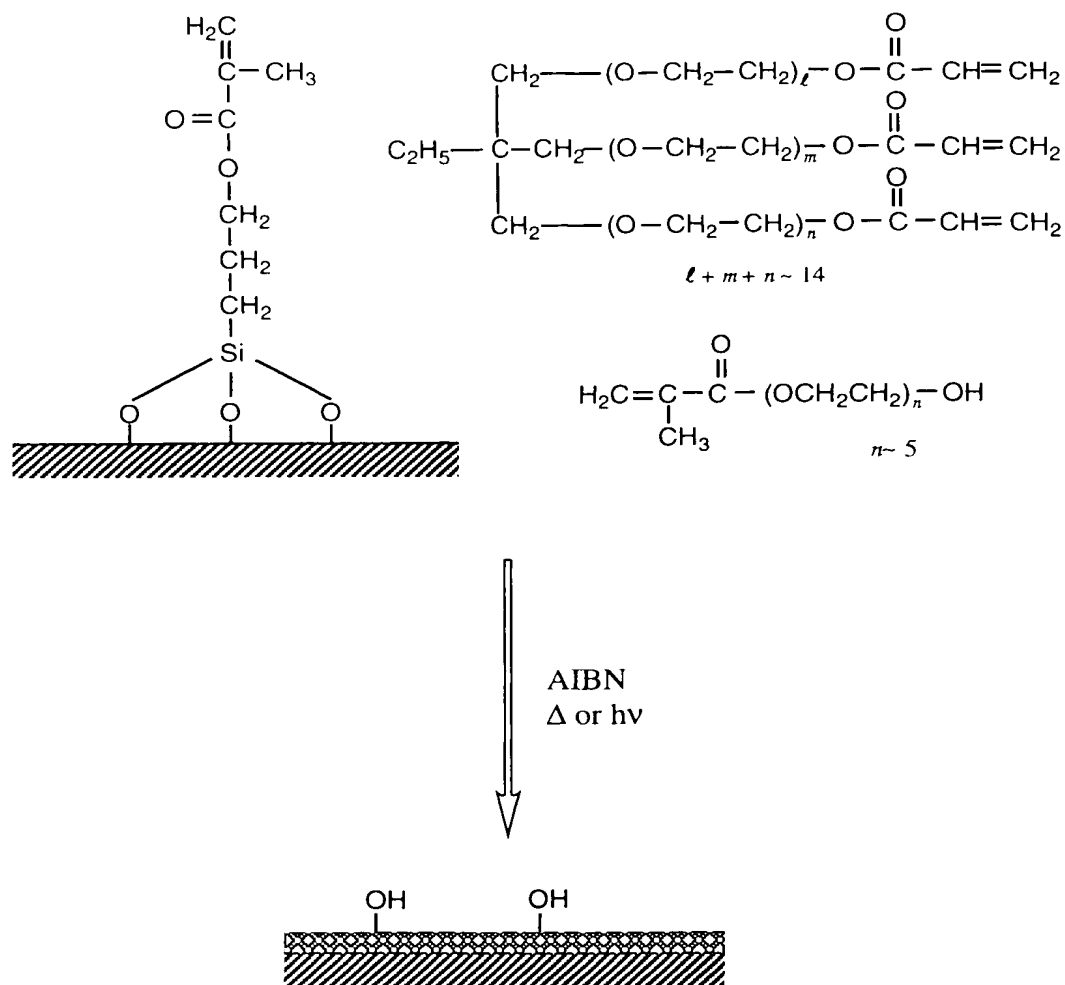


FIG. 34